

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number  
**WO 2005/040378 A1**

- (51) International Patent Classification<sup>7</sup>: C12N 15/11 (74) Agents: **PEAUCELLE**, Chantal et al.; Cabinet Armengaud Ainé, 3, avenue Bugeaud, F-75116 Paris (FR).
- (21) International Application Number: PCT/EP2004/012857 (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 25 October 2004 (25.10.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 03292666.9 24 October 2003 (24.10.2003) EP
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- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: NUCLEIC ACIDS USEFUL FOR TRIGGERING TUMOR CELL LETHALITY

(57) Abstract: The invention relates to double-stranded nucleic acid fragments comprising a chemically modified backbone and at least 4-1000 bp, preferably 8-500 bp, and most preferably 16-200 bp. The disclosed molecules (DRIL molecules) may interfere with DNA damage signalling and repair pathways, in particular the non homologous NHEJ pathway of double-stranded break repair. The invention discloses the application of the DRIL molecules as adjuvant compositions to be used in association with a DNA breaking treatment, particularly radiotherapy or chemotherapy, in combination with a pharmaceutically acceptable carrier, in an efficient amount to be introduced in the tumoral cell nuclei in order to trigger DNA repair induced lethality (DRIL in short) of tumoral cells/tissues.

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